

# What's in your Chinese takeaway?

Nutrition takeout series



What's in your Chinese takeaway? Nutrition takeout series

# **What's in your Chinese takeaway?**

## **Nutrition takeout series**

**ISBN:**

**Publication date:**

# Acknowledgements

This survey is part of a series of nutritional surveys **safe food** has commissioned and is currently funding. These include:

- Chicken and potato – Nutritional content of chicken and potato products in deli counters and takeaway outlets – completed in 2009
- Survey of salt levels in soup in catering establishments on the island of Ireland – completed in 2011
- What's in that box? – Nutritional content of a range of takeaway and shop-bought pizzas – completed in 2012
- What's in that bun? – Nutritional content of a range of takeaway burgers – completed in 2012

**safe food** would like to thank everyone involved in the research and preparation of this report, including:

- Eolas International, who conducted the research and prepared a report on the findings
- The analytical staff of **Eurofins, UK**, and Agri-Food and Biosciences Institute (AFBI), Hillsborough, Northern Ireland, who completed product analysis.

# Table of contents

<b>1</b>	Background.....	5
<b>2</b>	Purpose of survey.....	6
<b>3</b>	Methodology .....	7
	Sampling and laboratory analysis of Chinese meals.....	7
	Statistical analysis .....	8
<b>4</b>	Key findings.....	10
	Differences in portion size .....	11
	Chinese starters.....	12
	Chinese main courses .....	14
	Rice dishes .....	18
	Chinese takeaway outlets .....	19
	Healthier Chinese options .....	19
	Children's options.....	19
<b>5</b>	Conclusions .....	20
<b>6</b>	Recommendations .....	21
	Key messages for consumers:.....	21
	Key messages for catering industry: .....	21
	Appendices .....	22
	Appendix 1.....	xxiii
	References.....	xxxiii

# 1 Background

Excess body weight is the most important nutritional issue of our times, with two out of every three adults on the island of Ireland (IOI) currently classified as overweight or obese [1-3]. In addition, salt and fat intakes are high and consumption of fruit, vegetables and fibre on the IOI is low [2, 4]. This dietary pattern increases the risk of common chronic diseases such as cardiovascular disease, diabetes and certain cancers.

Lifestyles on the IOI have transformed over recent decades and this includes changes in our eating habits. There has been a rapid rise in the availability of 'convenient' and 'fast', cheap food, with eating food prepared outside the home becoming more and more common [3, 5-8]. Evidence suggests that in the current economic climate people are moving away from eating in restaurants to eating takeaways at home. In the Republic of Ireland (ROI), the 2011 National Adult and Nutrition Survey highlighted that 24 per cent of eating/drinking occasions involved food cooked 'outside the home' (i.e. in a restaurant/pub/coffee shop/takeaway) [2].

The impact that food prepared outside of the home has on the nutrient intakes of adults, has been studied previously on the IOI [9, 10]. It was found that food prepared outside the home contains considerably more dietary fat than food prepared within the home and it is also lower in fibre and micronutrients [10]. **safefood** has commissioned previous nutritional surveys in the takeaway sector. These surveys revealed that certain foods i.e. potato, chicken, pizzas and burgers prepared outside the home are high in calories, fat and salt [11-14]. These surveys also reported that there are major differences in portion sizes across takeaway outlets on the IOI [11].

Traditional Asian diets are low in fat and high in fruit, vegetables and fibre [15]. However, these traditional meals have been adapted to suit Western palates and, in doing so, different ingredients in different quantities are added, possibly increasing their fat and salt content. Recent research has found that Chinese is the single most popular style of meal across both takeaways and restaurants (excluding pub restaurants) on the IOI [16]. Given the diversity of Chinese dishes available, this survey was designed to provide an insight into the energy (calorie), total fat, saturated fat, protein and salt content of a range of Chinese meals from various Chinese takeaways, and Chinese restaurants with a takeaway service.

## 2 Purpose of survey

The aim of this survey is to provide a snapshot of the nutritional composition of a sample of Chinese meals purchased from a selection of Chinese takeaway outlets, and Chinese restaurants with a takeaway service on the IOI.

## 3 Methodology

### Sampling and laboratory analysis of Chinese meals

A sampling protocol was developed and included the following four criteria:

1. Three popular starters (Prawn Crackers, Won Tons with Sweet and Sour Sauce, and Vegetable Spring Rolls), three popular main courses (Beef Curry, King Prawn Satay, and Sweet and Sour Chicken) and boiled and egg fried rice. A large number of takeaway menus were analysed prior to the development of this sampling protocol and the dishes that were most readily available across all menus were considered to be popular.
2. A range of Chinese takeaway outlets, including Chinese takeaways and Chinese restaurants with a takeaway service.
3. A two-third/one-third split between ROI and NI respectively.
4. Urban/rural locations of sampling.

In total, two hundred and twenty Chinese meal samples were purchased (ROI, n=146; NI, n=74) in duplicate from a total of 35 separate takeaway outlets across IOI (Table 1). These were subsequently analysed in a laboratory to establish their energy (calorie), total fat, saturated fat, protein and salt content.

For the purpose of collection, each sample was wrapped individually and a questionnaire recording information on the location, name and description of the sample (as described on the menu) was completed. Once in the laboratory, all samples were weighed to measure total portion size and were frozen until analysis. One of the duplicate samples was used for energy analysis and the second duplicate sample was used for total fat, saturated fat, protein and salt analysis. Protein, fat and salt concentrations were analysed using standardised techniques. Sample collection was completed by Eolas International Research, Ireland. The samples were subsequently analysed by two accredited laboratories - Eurofins, UK and Agri-Food Biosciences Institute (AFBI), NI.

**Table 1: Summary of the Chinese meals sampled**

	Chinese meal type	Total
<b>Starters (n=90)</b>	Prawn crackers	30
	Won tons with sweet and sour sauce	30
	Vegetable spring rolls	30
<b>Mains (n=90)</b>	Beef curry	30
	King prawn satay	30
	Sweet and sour chicken	30
<b>Rice (n=40)</b>	Boiled rice	20
	Egg fried rice	20
	<b>Total</b>	<b>220</b>

## Statistical analysis

Data was analysed using the Statistical Package for Social Sciences (SPSS® for Windows, Version 18.0). P values  $\leq 0.05$  were considered to be statistically significant.

Guideline Daily Amounts (GDA) help people to understand approximately how many calories, and how much protein, carbohydrate, fat, saturated fat, fibre, sodium and sugars are required for a healthy diet. These values (Table 2) were used in this report to provide an estimate of how much each Chinese meal contributes to individual GDA levels and to allow for the easy comparison between different meal types.



Table 2: Current adult GDA [17]

Energy or nutrient	Adult GDA
Energy	2,000 kcal
Total fat	70 g
Saturated fat	20 g
Protein	50 g
Salt	6 g

## 4 Key findings

- A typical Chinese takeaway, consisting of a portion of vegetable spring rolls and sweet and sour chicken with egg fried rice, provides approximately 2,184 calories (109 per cent of the adult GDA for energy), 74 grams of total fat (106 per cent of the adult GDA for total fat), 14 grams of saturated fat (70 per cent of the adult GDA for saturated fat) and 10 grams of salt contributing 160 per cent of the adult GDA for salt.
- Portion sizes varied considerably and were large. Five-fold differences were found among portions of prawn crackers, while a three-fold difference was seen across portions of won tons and vegetable spring rolls. Main course portion sizes were found to be enough for two people with the average portion of beef curry and sweet and sour chicken exceeding the Food Standards Agency's recommended average portion size by 195 grams and 220 grams respectively. The average portion of boiled and egg fried rice was also found to be enough for two, weighing 323 grams and 359 grams respectively.
- A portion of prawn crackers (104 grams) contained on average 608 kcals (30 per cent of the adult GDA for energy) and 39 grams of total fat (56 per cent of the adult GDA for total fat). A portion of vegetable spring rolls (147 grams) had the lowest amount of calories, total fat and saturated fat when compared to the other two starter types.
- With an average of 1,106 calories and 41 grams per portion, sweet and sour chicken was found to have the highest energy and total fat content respectively, while a beef curry was found to have the highest saturated fat and salt content with 10 grams and 7 grams per portion respectively.
- A portion of egg fried rice contained on average 727 calories (36 per cent of the adult GDA for energy), 14 grams of total fat and 3 grams of saturated fat (20 per cent and 15 per cent of the adult GDA for total fat and saturated fat respectively). Boiled rice provides approximately 160 less calories, 12 less grams of total fat and 2.5 less grams of saturated fat per portion making it the healthier option.
- This survey found that Chinese takeaways are a major source of salt. Each starter type was found to have on average 2 grams of salt per portion (33 per cent of the adult GDA for salt). Average portions of beef curry (6.85 grams) and king prawn satay (6.44 grams) both contained over 100 per cent of the adult GDA for salt. In some instances salt levels were found to exceed twice the adult GDA. In terms of rice, the average portion of egg fried rice was found to

contain 4 grams of salt (67 per cent of the adult GDA for salt) while boiled rice had negligible salt values.

## Differences in portion size

Of the 90 starters surveyed, average portion weights per starter type were 104 grams for the prawn crackers, 183 grams for won tons with a sweet and sour sauce and 147 grams for vegetable spring rolls.

Of the 90 main courses analysed, average portion weights per main course were 555 grams for a beef curry, 517 grams for the king prawn satay and 520 grams for the sweet and sour chicken.

Of the 40 rice samples analysed, boiled rice had an average portion weight of 323 grams and egg fried rice had an average portion weight of 359 grams.

Portion sizes varied considerably and were large. In some cases there were four- to five-fold differences found between minimum and maximum portion sizes. The weight range across starters was substantial with five-fold differences found among portions of prawn crackers while a three-fold difference was seen across portions of won tons and vegetable spring rolls. Main course portion sizes were found to be enough for two people, with the average portion of beef curry and sweet and sour chicken exceeding the Food Standards Agency's recommended average portion size for a typical beef and sweet and sour dish by 195 grams and 220 grams respectively. The average portion of boiled and egg fried rice was also found to be enough for two, weighing 323 grams and 359 grams respectively [18] (Table 3).

Table 3: Average, minimum and maximum portion weight per Chinese meal

Chinese meal type	Average portion weight (g)	Min weight (g)	Max weight (g)
	Mean	Mean	Mean
<b>Starters</b>			
Prawn crackers	104	58	270
Won tons with sweet and sour sauce	183	106	324
Vegetable spring roll	147	94	270
<b>Mains</b>			
Beef curry	555	380	768
King prawn satay	517	345	786
Sweet and sour chicken	520	378	735
<b>Rice</b>			
Boiled rice	323	261	392
Egg fried rice	359	290	452

## Chinese starters

Although it was found to have the lightest portion weight amongst the three starter types analysed, the average portion of prawn crackers (104 grams) was found to have the highest levels of energy (calories), total and saturated fat, when compared to either a portion of won tons with sweet and sour sauce or a portion of vegetable spring rolls. An average portion of prawn crackers was found to have 608 calories (30 per cent of the adult GDA for energy) and relatively high levels of total fat (39 grams – 56 per cent of the adult GDA for total fat), saturated fat (6 grams – 30 per cent of the adult GDA for saturated fat) and salt (2 grams – 33 per cent of the adult GDA for salt) (Table 4). In some instances a portion of prawn crackers was found to have over 100 per cent of the adult GDA for total fat (Table 5). Even spring rolls, which had the lowest number of calories per portion, contributed 19 grams of total

fat (27 per cent of the adult GDA for total fat) and 4 grams of saturated fat (20 per cent of the adult GDA for saturated fat) per portion (Table 4). Salt levels across the three starter types were similar, with each dish contributing to approximately one-third of the adult GDA for salt.

**Table 4: Mean value and % adult GDA for energy and nutrient content analysed per Chinese starter type (per portion)**

Parameter	Prawn crackers	GDA (%)	Won ton with sweet and sour sauce	GDA (%)	Vegetable spring roll	GDA (%)
Energy (kcal)	608	30	543	27	351	18
Total fat (g)	39	56	22	31	19	27
Saturated fat (g)	6	30	5	25	4	20
Protein (g)	0.41	0.8	13	27	5	11
Salt (g)	2	33	2	33	2	33

(Values circled in green demonstrate the lowest parameter values and those circled in red highlight the highest)

Table 5 shows the range of values found in the parameters measured for each variety of Chinese starter sampled. The nutritional ranges were large. There was a nine-fold difference seen in saturated fat across won tons with sweet and sour sauce and total fat levels ranged from 10.1 grams to 52.1 grams. A five-fold difference was found in salt across all three starter types. Refer to Appendices A and C for full results.

Table 5: Ranges for nutritional parameters analysed per Chinese starter type (per portion)

Parameter	Prawn crackers				Won ton with sweet and sour sauce				Vegetable spring roll			
	Min	GDA (%)	Max	GDA (%)	Min	GDA (%)	Max	GDA %	Min	GDA (%)	Max	GDA (%)
Energy (kcal)	358	18	1398	70	327	16	1032	52	228	11	545	27
Total fat (g)	21	30	98	140	10	14	52	74	9	13	32	46
Saturated fat (g)	2	10	15	75	2	10	17	85	2	10	7	35
Protein (g)	0.17	2	1.14	2	4	8	31	62	3	6	15	30
Salt (g)	1	16	5	83	1	16	5	83	1	16	5	83

## Chinese main courses

Across all main courses, no one main course could be considered healthy (Tables 6 and 7, and Figure 1). Refer to Appendices A and C for full results.

With an average of 1,106 kcals, 55 per cent of the adult GDA for energy, sweet and sour chicken was found to have the greatest number of calories per portion when compared to either a beef curry (791 kcals – 40 per cent of the adult GDA for energy) or a king prawn satay (608 kcals or 30 per cent of the adult GDA for energy).

This survey found that the average portion of beef curry (555 grams) contained over half the adult GDA for total fat, saturated fat and protein and over one hundred per cent of the adult GDA for salt (Table 6 and Figure 1).

Per portion, a king prawn satay was found to have the lowest number of calories (608 kcals) and the also the lowest levels of total fat (28 grams) and saturated fat (7 grams) when compared to the other two main courses. It was also found to be the lowest contributor of protein when compared to either a beef curry or a sweet and sour chicken (both containing 46 grams of protein - 92 per cent of the

adult GDA for protein respectively), however with 30 grams per portion it still provided 60 per cent of the adult GDA (Table 6 and Figure 1).

The average portion of sweet and sour chicken (520 grams) was found to be similar to a beef curry in its total fat content and similar to the king prawn satay in its saturated fat content, containing over 40 grams of total fat and 7 grams of saturated fat (Table 6 and Figure 1).

On average all three dishes contributed two-thirds or more of the adult GDA for salt. Both the beef curry (6.85 grams) and the king prawn satay (6.44 grams) were found to have over 100 per cent of the adult GDA, and in some instances exceeded twice the adult GDA for salt (Tables 6 and 7). With an average salt value of 4.23 grams per portion, sweet and sour chicken was found to have statistically less salt when compared to the other two dishes (Tables 6 and 7).

**Table 6: Mean value and % adult GDA for energy and nutrient content analysed per Chinese main course type (per portion)**

Parameter	Beef curry	GDA (%)	King prawn satay	GDA (%)	Sweet and sour chicken	GDA (%)
Energy (kcal)	791	40	608	30	1106	55
Total fat (g)	37	53	28	40	41	59
Saturated fat (g)	10	50	7	35	7	35
Protein (g)	46	92	30	60	46	92
Salt (g)	7	116	6	100	4	67

(Values circled in green demonstrate the lowest parameter values and those circled in red highlight the highest)

Figure 1: Nutritional content as % of the adult GDA for each Chinese main course

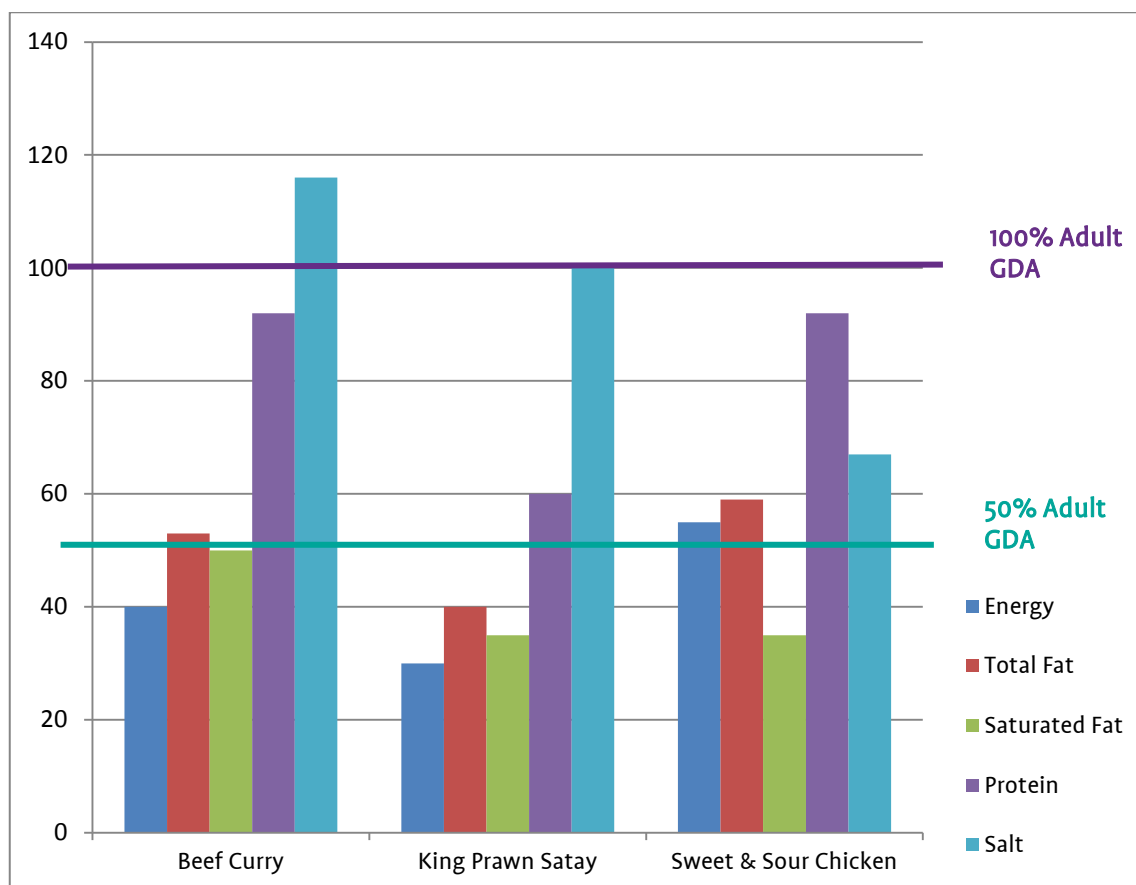




Table 7: Ranges for nutritional parameters analysed per main course type (per portion)

	Beef curry				King prawn satay				Sweet and sour chicken			
Parameter	Min	GDA (%)	Max	GDA (%)	Min	GDA (%)	Max	GDA (%)	Min	GDA (%)	Max	GDA (%)
Energy (kcal)	487	24	1454	73	360	18	1103	55	799	40	1572	77
Total fat (g)	16	23	65	93	8	0.4	56	80	23	33	68	97
Saturated fat (g)	5	25	25	125	3	15	19	95	4	20	18	90
Protein (g)	19	38	106	212	21	42	52	104	27	54	69	138
Salt (g)	3	50	13	216	3	50	18	300	2	33	8	133

Table 7 shows the range of values found in the parameters measured for each variety of Chinese main courses. Like Chinese starters the nutritional ranges across mains were large. There was a seven-fold difference seen in total fat across king prawn satay, and saturated fat levels ranged from 2.61 grams to 19.19 grams (95 per cent of the adult GDA for saturated fat). A four-fold difference was found in salt across all three main course types.

## Rice dishes

Based on the results of this survey, egg fried rice is the less healthy option when compared to boiled rice as it was found to have statistically significantly higher levels of all parameters assessed (Table 8).

The average portion of egg fried rice (359 grams) was found to have 727 kcals (36 per cent of the adult GDA for energy), 14 grams of total fat (20 per cent of the adult GDA for total fat), 3 grams of saturated fat (50 per cent of the adult GDA for saturated fat) and 4 grams of salt (67 per cent of the adult GDA for salt). In some instances a portion of egg fried rice was found to provide over 100 per cent of the adult GDA for salt (Table 8).

**Table 8: Descriptive analysis of parameters of boiled rice and egg fried rice**

Parameter	Boiled rice						Egg fried rice					
	Mean	GDA (%)	Min	GDA (%)	Max	GDA (%)	Mean	GDA (%)	Min	GDA (%)	Max	GDA (%)
Energy (kcal)	567	28	481	24	694	35	727	36	579	29	920	46
Total fat (g)	2	3	0.72	1	4	7	14	20	8	11	24	34
Saturated fat (g)	0.3	1.5	0.14	0.5	1.02	5	3	15	1.39	5	5	25
Protein (g)	11	22	9	18	14	28	16	80	10	20	21	42
Salt (g)	0.01	0.1	0.007	0.1	0.05	0.8	4	67	1.07	16	9.25	150

(Values circled in green demonstrate the lowest parameter values and those circled in red highlight the highest)

Table 8 also shows the range of values found in the parameters measured for both boiled and egg fried rice. There was a four-fold difference seen in saturated fat across egg fried rice, and salt levels ranged from 1.07 grams to 9.25 grams (150 per cent of the adult GDA for salt). Refer to Appendices A and D for full results.

## **Chinese takeaway outlets**

In order to detect any effect of outlet type, Chinese takeaways and restaurants with a takeaway service were compared. No major differences were found between the two location types. The only statistically significant differences found were between the portions weights of vegetable spring rolls bought from Chinese takeaways (164 grams) compared to those bought at a restaurant with a takeaway service (131 grams). Refer to Appendices E, F and G for full results.

## **Healthier Chinese options**

51 per cent of outlets providing a Chinese takeaway service offered 'healthier options', however the choice of such was very limited – being either vegetarian or gluten free. Low fat sauces were not available from any outlet.

## **Children's options**

Only 9 per cent of outlets offered a variety of children's options. These were marketed as mini-meals, junior boxes or smaller portions.

## 5 Conclusions

With a quarter of food consumed by adults on the island of Ireland today prepared outside of the home, it is important that consumers have the right information to make choices. The nutritional and health benefits of eating a balanced diet can be compromised by the high content of calories, total and saturated fat, salt and larger portion sizes of many readily available takeaway foods.

This survey found that Chinese meals, bought from takeaway outlets and restaurants with a takeaway service, vary considerably in portion size and also contain significant levels of calories, fat and salt. In some cases there were four- to five-fold differences found between minimum and maximum portion sizes, while in many instances portions were found to be large enough for two people. Results suggest that the average Chinese takeaway, comprising of a starter and a main plus rice, contains calories, fat and salt at levels greater than the adult GDA. This does not take into account other foods consumed throughout the day.

This survey found that of the three starter types sampled, prawn crackers (often provided free of charge) contained over half the adult GDA per portion of total fat and thirty per cent of the adult GDA per portion of saturated fat, suggesting this is the least healthy starter option. Vegetable spring rolls were found to have the lowest levels of calories, total fat and saturated fat per portion, in comparison to the other two start types analysed.

No one main course could be considered as the healthiest option. The average portion of beef curry was found to provide values in excess of fifty per cent of the adult GDA for total fat and saturated fat, while the average portion of sweet and sour chicken was found to contribute values in excess of fifty per cent of the adult GDA for calories and total fat. All three main courses provided two-thirds or more of the adult GDA for salt, with the average portion of beef curry and king prawn satay providing over one hundred per cent of the adult GDA for salt.

On comparing boiled and egg fried rice, boiled rice was the healthier option having significantly lower values across all parameters measured. However, despite boiled rice being considerably low in total fat, saturated fat and salt, it was found to provide over a quarter of the adult GDA for energy (567 kJ), suggesting those aiming to lose weight should be mindful of boiled rice portion size.

Generally, the outlet type did not influence the nutritional content of the Chinese meal, i.e. overall, there was little or no difference in parameters assessed in a meal from a Chinese takeaway when compared to that obtained from restaurants with a takeaway service.

## 6 Recommendations

### Key messages for consumers:

- Consider Chinese takeaways as an occasional food for sharing.
- When choosing options – pay attention to the descriptions on the menu. Dishes labelled deep fried, pan fried, battered, breaded or crispy should be avoided as these are considered to be very high in calories, total and saturated fat and salt.
- Avoid nibbling on the prawn crackers– an average portion, which are often given free with a Chinese meal, provides over 600 kcals.
- Our findings suggest that beef curry and king prawn satay main courses should be avoided by people watching their salt intake as these dishes exceeded the adult GDA for salt.
- Choose a portion of boiled rice over egg fried rice, and share.
- Order items with more vegetables without sauce and where possible, choose leaner meats.
- Minimise intake of sauces as these are usually high in calories, fat and salt.
- Drink water with takeaway meals – soft drinks are a considerable source of hidden calories and if consumed with takeaway meals may push a consumer towards or above their GDA calorie intake.

### Key messages for catering industry:

- Provide calories on menus.
- Catering outlets should offer smaller portions and indicate which serving sizes are suitable for sharing. Consider reducing the portion sizes offered.
- Catering outlets should offer sauces 'on the side' and allow consumers to add as little or as much as they want themselves at home.
- Alternatives to deep fried and battered dishes should be made available.
- Dishes with more vegetables should be made available.
- Consider developing healthier menu options that are lower in salt, fat and calories and highlighting these for customers. Reduce use of added fats and salt in recipes.

# Appendices

## Appendix 1

### A: Descriptive analysis of parameters of Chinese meal varieties analysed by SPSS (per portion)

Parameter	Chinese type	Chinese meal	N	Mean	Std. deviation	Range	Min	Max
<b>Energy (kcal)</b>	Starters	Prawn crackers	30	608.24	213.08	1039.96	358.14	1398.10
		Won ton*	30	542.98	165.12	705.80	326.52	1032.32
		Vegetable spring roll	30	351.49	70.22	317.09	228.04	545.13
	Mains	Beef curry	30	791.24	199.48	966.99	486.87	1453.86
		Sweet/sour chicken	30	1106.80	196.84	773.00	799.03	1572.03
		King prawn satay	30	608.40	178.36	742.89	359.89	1102.78
	Rice	Boiled	20	566.92	54.98	212.43	481.34	693.77
		Egg fried	20	727.46	103.95	340.19	579.44	919.63
<b>Total fat (g)</b>	Starters	Prawn crackers	30	38.96	15.92	77.17	21.11	98.28
		Won ton*	30	22.10	7.83	42.01	10.15	52.16
		Vegetable spring roll	30	18.83	5.12	22.75	9.05	31.80
	Mains	Beef curry	30	36.95	11.62	49.45	15.83	65.28
		Sweet/sour chicken	30	40.73	10.51	44.81	22.93	67.74
		King prawn satay	30	27.95	11.62	47.28	8.34	55.62
	Rice	Boiled	20	1.58	1.1	3.77	0.72	4.49
		Egg fried	20	14.26	4.55	16.4	7.58	23.98
<b>Saturated fat (g)</b>	Starters	Prawn crackers	30	5.68	2.53	13.04	2.32	15.36
		Won ton*	30	4.90	2.52	14.04	1.63	15.67
		Vegetable spring roll	30	4.29	1.11	5.52	1.71	7.23
	Mains	Beef curry	30	9.57	4.01	20.22	4.88	25.10
		Sweet/sour chicken	30	7.26	2.70	13.63	3.88	17.51
		King prawn satay	30	7.27	4.22	16.58	2.61	19.19
	Rice	Boiled	20	0.34	0.27	0.88	0.14	1.02
		Egg fried	20	2.70	0.92	3.49	1.39	4.88

Parameter	Chinese type	Chinese meal	N	Mean	Std. deviation	Range	Min	Max
Protein (g)	Starters	Prawn crackers	30	0.41	0.24	0.967	0.174	1.14
		Won ton*	30	13.43	6.86	26.79	4.05	30.84
		Vegetable spring roll	30	5.43	2.21	11.93	3.05	14.98
	Mains	Beef curry	30	46.43	15.44	87.33	18.65	105.98
		Sweet/sour chicken	30	46.38	11.99	42.38	26.98	69.36
		King prawn satay	30	30.49	6.81	30.53	21.22	51.64
		Boiled	20	10.85	1.16	4.37	9.19	13.56
	Rice	Egg fried	20	15.53	2.89	11.03	9.82	20.85
Salt (g)	Starters	Prawn crackers	30	2.11	0.88	3.96	1.07	5.03
		Won ton*	30	2.01	0.76	4.03	0.85	4.88
		Vegetable spring roll	30	2.21	0.85	3.77	0.83	4.60
	Mains	Beef curry	30	6.85	2.60	9.62	3.24	12.86
		Sweet/sour chicken	30	4.23	1.60	6.28	1.51	7.79
		King prawn satay	30	6.44	2.77	14.50	3.17	17.67
		Boiled	20	0.011	0.009	0.043	0.007	0.05
	Rice	Egg fried	20	4.06	2.25	8.18	1.07	9.25

\*Won ton in sweet and sour sauce



## B: Statistical difference between Chinese starter varieties (per portion)

Parameter	Product mean (SD)			Comparison	P - Value
	Prawn crackers	Won tons in sweet/sour sauce	Vegetable spring roll		
<b>Energy (kcal/portion)</b>	608.24 <sup>A</sup> (213.08)	542.98 <sup>A</sup> (165.12)	351.49 <sup>B</sup> (70.22)	PC-WT. PC-VSR. VSR-WT.	0.120 0.000* 0.000*
<b>Total fat (g/portion)</b>	38.96 <sup>A</sup> (15.92)	22.11 <sup>B</sup> (7.83)	18.84 <sup>B</sup> (5.13)	PC-WT. PC-VSR. VSR-WT.	0.000* 0.000* 0.238
<b>Saturated fat (g/portion)</b>	5.69 <sup>A</sup> (2.53)	4.90 <sup>AB</sup> (2.52)	4.29 <sup>B</sup> (1.11)	PC-WT. PC-VSR. VSR-WT.	0.162 0.014* 0.277
<b>Protein (g/portion)</b>	0.41 <sup>C</sup> (0.24)	13.43 <sup>A</sup> (6.86)	5.43 <sup>B</sup> (2.21)	PC-WT. PC-VSR. VSR-WT.	0.000* 0.000* 0.000*
<b>Salt (g/portion)</b>	2.11 <sup>A</sup> (0.89)	2.02 <sup>A</sup> (0.76)	2.21 <sup>A</sup> (0.85)	PC-WT. PC-VSR. VSR-WT.	0.673 0.639 0.373

\*Denotes statistical significance

A,B,B – A is statistically significantly different to both Bs, where A has the highest mean value. Both Bs are not statistically significantly different from each other.

A,B,AB – A is statistically significantly different to B, where A has the highest mean value. AB is not statistically significantly different from either A or B.

A,B,C – A, B and C are all statistically significantly different from each other, where A has the highest mean value, followed by B and then C.

A,A,A – All are not statistically significantly different from each other.

### C: Comparisons between Chinese main varieties (per portion)

Parameter	Product mean (SD)			Comparison	P -Value
	Beef curry	Sweet and sour chicken	King prawn satay		
<b>Energy (kcal/portion)</b>	791.24 <sup>B</sup> (199.48)	1106.80 <sup>A</sup> (196.84)	608.40 <sup>C</sup> (178.36)	BC-SSC. BC-KPS. SSC-KPS.	0.000* 0.000* 0.000*
<b>Total fat (g/portion)</b>	36.95 <sup>A</sup> (11.62)	40.73 <sup>A</sup> (10.51)	27.95 <sup>B</sup> (11.62)	BC-SSC. BC-KPS. SSC-KPS.	0.197 0.003* 0.000*
<b>Saturated fat (g/portion)</b>	9.57 <sup>A</sup> (4.01)	7.26 <sup>B</sup> (2.70)	7.27 <sup>B</sup> (4.22)	BC-SSC. BC-KPS. SSC-KPS.	0.018* 0.018* 0.990
<b>Protein (g/portion)</b>	46.43 <sup>A</sup> (15.44)	46.38 <sup>A</sup> (11.99)	30.49 <sup>B</sup> (6.81)	BC-SSC. BC-KPS. SSC-KPS.	0.986 0.000* 0.000*
<b>Salt (g/portion)</b>	6.85 <sup>A</sup> (2.60)	4.23 <sup>B</sup> (1.60)	6.44 <sup>A</sup> (2.77)	BC-SSC. BC-KPS. SSC-KPS.	0.000* 0.507 0.001*

\*Denotes statistical significance

B,A,A – B is statistically significantly different to both As, where B has the lowest mean value. Both As are not statistically significantly different from each other.

A,B,B – A is statistically significantly different to both Bs, where A has the highest mean value. Both Bs are not statistically significantly different from each other.

A,B,C – A, B and C are all statistically significantly different from each other, where A has the highest mean value, followed by B and then C.

### D: Comparisons between rice (per portion)

Parameter	Product mean (SD)		Sig
	Boiled rice	Egg fried rice	P -Value
<b>Energy</b> <b>(kcal/portion)</b>	566.92 (54.98)	727.46 (103.95)	0.000*
<b>Total fat</b> <b>(g/portion)</b>	1.59 (1.10)	14.26 (4.55)	0.000*
<b>Saturated fat</b> <b>(g/portion)</b>	0.34 (0.27)	2.70 (0.92)	0.000*
<b>Protein</b> <b>(g/portion)</b>	10.85 (1.16)	15.53 (2.89)	0.000*
<b>Salt</b> <b>(g/portion)</b>	0.01 (0.01)	4.06 (2.25)	0.000*

\*Denotes statistical significance

### E: Comparisons in starter varieties between outlets (per portion) Mean (SD)

Parameter	Product	Chinese restaurant with takeaway service	Chinese takeaway	P - Value
Weight (g)	Prawn crackers	107.00 (47.63)	100.81 (20.23)	0.67
	Won ton in sweet/sour sauce	172.09 (63.39)	198.15 (56.45)	0.25
	Vegetable spring roll	131.44 (20.70)	164.36 (41.81)	0.015
Energy (kcal)	Prawn crackers	608.12 (261.62)	608.39 (135.90)	0.997
	Won ton in sweet/sour sauce	527.62 (185.49)	563.06 (138.72)	0.569
	Vegetable spring roll	333.22 (53.34)	372.37 (82.69)	0.13
Total fat (g)	Prawn crackers	39.79 (19.28)	37.88 (10.70)	0.75
	Won ton in sweet/sour sauce	21.06 (9.04)	23.48 (5.94)	0.41
	Vegetable spring roll	17.76 (4.01)	20.07 (6.08)	0.23
Saturated fat (g)	Prawn crackers	5.94 (2.96)	5.36 (1.88)	0.54
	Won ton in sweet/sour sauce	4.37 (1.68)	5.60 (3.27)	0.19
	Vegetable spring roll	4.10 (0.81)	4.52 (1.37)	0.31
Protein (g)	Prawn crackers	0.43 (0.27)	0.39 (0.19)	0.59
	Won ton in sweet/sour sauce	12.31 (5.47)	14.89 (8.35)	0.32
	Vegetable spring roll	5.10 (2.74)	5.81 (1.38)	0.39
Salt (g)	Prawn crackers	2.24 (1.05)	1.94 (0.62)	0.36

Won ton in sweet/sour sauce	1.82 (0.37)	2.28 (1.04)	0.15
Vegetable spring roll	2.08 (0.72)	2.36 (0.98)	0.38

---

**F: Comparisons in main course varieties between outlets (per portion)**

Parameter	Product	Chinese restaurant with takeaway service	Chinese takeaway	P - Value
<b>Weight (g portion)</b>	Beef curry	557.26	552.27	0.88
		(78.03)	(96.12)	
	Sweet and sour chicken	531.68	504.92	0.34
		(77.80)	(69.23)	
	King prawn satay	526.15	504.00	0.53
		(88.81)	(101.48)	
<b>Energy (kcal/portion)</b>	Beef curry	785.12	799.25	0.851
		(215.45)	(184.81)	
	Sweet and sour chicken	1163.37	1032.81	0.071
		(195.44)	(179.56)	
	King prawn satay	634.36	574.46	0.371
		(181.67)	(175.13)	
<b>Total fat (g/portion)</b>	Beef curry	36.87	37.07	0.96
		(12.80)	(10.38)	
	Sweet and sour chicken	41.45	39.80	0.68
		(10.45)	(10.94)	
	King prawn satay	29.06	26.49	0.56
		(10.68)	(13.04)	
<b>Saturated fat (g/portion)</b>	Beef curry	9.08	10.22	0.45
		(3.21)	(4.94)	
	Sweet and sour chicken	7.22	7.30	0.94
		(1.91)	(3.57)	
	King prawn satay	7.61	6.82	0.62
		(4.37)	(4.14)	
<b>Protein (g/portion)</b>	Beef curry	47.22	45.41	0.76
		(18.89)	(9.90)	

Parameter	Product	Chinese restaurant with takeaway service	Chinese takeaway	P - Value
<b>Salt (g/portion)</b>	Sweet and sour chicken	49.33	42.51	0.13
		(10.40)	(13.22)	
	King prawn satay	31.79	28.80	0.24
		(7.50)	(5.62)	
	Beef curry	6.65	7.12	0.64
		(2.73)	(2.52)	
	Sweet and sour chicken	4.26	4.19	0.91
		(1.42)	(1.87)	
	King prawn satay	6.56	6.30	0.80
		(3.36)	(1.84)	

\*Denotes statistical significance

### G: Comparisons in main rice varieties between outlets (per portion)

Parameter	Product	Chinese restaurant with takeaway service	Chinese takeaway	P - Value
<b>Weight (g/portion)</b>	Boiled rice	324.27 (34.20)	321.94 (31.76)	0.88
	Egg fried rice	359.68 (47.78)	358.72 (41.36)	0.96
<b>Energy (kcal/portion)</b>	Boiled rice	560.95 (51.24)	574.23 (61.55)	0.605
	Egg fried rice	732.95 (122.63)	720.75 (82.29)	0.802
<b>Total fat (g/portion)</b>	Boiled rice	1.36 (0.67)	1.87 (1.47)	0.36
	Egg fried rice	13.94 (4.87)	14.65 (4.39)	0.74
<b>Saturated fat (g/portion)</b>	Boiled rice	0.28 (0.17)	0.41 (0.35)	0.33
	Egg fried rice	2.69 (0.97)	2.71 (0.93)	0.98
<b>Protein (g/ portion)</b>	Boiled rice	10.28 (0.88)	11.55 (1.10)	0.011
	Egg fried rice	15.65 (2.99)	15.38 (2.94)	0.84
<b>Salt (g/ portion)</b>	Boiled rice	0.01 (0.01)	0.01 (0.00)	0.47
	Egg fried rice	4.62 (2.51)	3.37 (1.79)	0.23

\*Denotes statistical significance



## References

1. Northern Ireland Statistics and Research Agency. (2007). *Northern Ireland Health and Social Wellbeing Survey 2005/2006*. Central Survey Unit, Department of Health, Social Services and Public Safety. Belfast
2. Irish Universities Nutrition Alliance. (2011). *National Adult Nutrition Survey*.
3. Harrington, J., et al. (2008). *SLÁN 2007: Survey of Lifestyle, Attitudes and Nutrition in Ireland. Dietary Habits of the Irish Population*, D.o.H.a. Children, Editor. The Stationery Office. Dublin.
4. Food Standards Agency and Department of Health. (2008/ 2009.). *National Diet and Nutrition Survey - Headline results from Year 1 of the Rolling Programme*.
5. Northern Ireland Statistics and Research Agency. (2007). *Expenditure and Food Survey*. Belfast.
6. Department of the Environment Food and Rural Affairs. (2008). *Family Food Survey*. London.
7. Central Statistics Office. (1999-2000). *Household Budget Survey*. Available from: [http://www.cso.ie/surveysandmethodologies/documents/pdf\\_docs/Expanding\\_HBS\\_Jul\\_06.pdf](http://www.cso.ie/surveysandmethodologies/documents/pdf_docs/Expanding_HBS_Jul_06.pdf).
8. Central Statistics Office. (2004/2005). *Household Budget Survey*. Available from: <http://www.cso.ie/releasespublications/documents/housing/hbsfinal/webcomplete.pdf>.
9. O'Dwyer, N.A., et al. (2005). *The influence of eating location on nutrient intakes in Irish adults: implications for developing food-based dietary guidelines*. Public Health Nutrition. 8(3): p. 258-65.
10. O'Dwyer, N.A., et al. (2005). *The temporal pattern of the contribution of fat to energy and of food groups to fat at various eating locations: implications for developing food-based dietary guidelines*. Public Health Nutrition. 8(3): p. 249-57.
11. **safe food**. (2009). *Chicken and Potato: Nutritional content of chicken and potato products in deli counters and takeaway outlets*. Cork.
12. **safe food**. (2012). *Pizza - What's in that box? Nutrition takeout series*. Cork.
13. **safe food**. (2011). *Survey of salt levels in soup in catering establishments on the island of Ireland*. Cork.
14. **safe food**. (2012). *What's in that bun? Nutrition takeout series*. Cork.
15. Hu, F.B., et al. (2000). *Prospective study of major dietary patterns and risk of coronary heart disease in men*. Am J Clin Nutr. 72(4): p. 912-21.
16. Mintel. (2011). *Ethnic Cuisine - Ireland*. London. p. pg 37-42.
17. The food and grocery experts. (20 February 2012). *GDAs for adults*. Available from: <http://www.igd.com/index.asp?id=1&fid=5&sid=42&tid=62&cid=446>.
18. Crawley, H. (2002). *Food Portion Size*. Third ed. Food Standards Agency. London: The Stationary Office.

***safefood:***

7 Eastgate Avenue, Eastgate, Little Island, Co. Cork

7 Ascaill an Gheata Thoir, An tOiléan Beag, Co. Chorcaí

7 Aistiyett Avenue, Aistiyett, Wee Isle, Co. Cork

***Tel:*** +353 (0)21 230 4100 ***Fax:*** +353 (0)21 230 4111

***Email:*** [info@safefood.eu](mailto:info@safefood.eu) ***Web:*** [www.safefood.eu](http://www.safefood.eu)

[www.safefood.eu](http://www.safefood.eu)  
**HELPLINE**  
NI 0800 085 1683  
ROI 1850 40 4567